

# USAID EcoLinks Event Report

## ***Regional Seminar on Renewable Energy Market Development in Central Asia***

Almaty, Kazakhstan, September 19-21, 2005



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ENVIRONMENTALLY SUSTAINABLE ECONOMIES

## ***Regional Seminar on Renewable Energy Market Development in Central Asia***

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EcoLinks wishes to express our appreciation to the sponsors and participants who have made this workshop a great success and demonstrated their readiness to take concrete steps towards the development of markets for eco-efficient technologies in the Eurasia region.

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## ***Regional Seminar on Renewable Energy Market Development in Central Asia***

### **I Executive Summary**

The *Regional Conference on Renewable Energy Market Development in Central Asia* was held in Almaty, Kazakhstan, September 19-20, 2005. It brought together more than 70 key players in the energy and development fields to promote **increased regional cooperation to catalyze the development of markets for renewable energy in Central Asia**. The conference discussed policy options and resource needs with policy and energy experts from national governments, neighboring countries and international organizations, characterized underlying environmental, social and economic problems, local renewable energy resources and technical expertise by-country. The Conference also proposed options for the better coordination, prioritization and funding of project activities on a regional basis- in furtherance of existing cooperative activities initiated by the *Working Group on Renewable Energy in Central Asia*, convened in October 2004.

At the Almaty Conference government representatives from four countries (Kazakhstan, Kyrgyzstan, Tajikistan, and Uzbekistan), regional energy experts, private firms and international development organizations endorsed the founding of **a regional sustainable energy organization for the Central Asia Republics (CAR)**. This new organization will be a regional “alliance” (i.e., a multi-national association) of institutions, government agencies, private sector enterprises, NGOs, financial institution representatives and research institutes.

The objective of the new organization will be to promote markets for efficient, clean, renewable, and affordable energy and energy uses to the residents of Central Asia. Its scope will encompass:

- Renewable energy
- Energy efficiency – in industry, buildings, district heating, services (hospitals, schools, water purification, water pumping, etc.)
- Emissions reduction and environmental protection
- Application of environmental clean-up technologies (e.g., reducing agricultural runoff into local water, reducing pollution of groundwater, wastewater treatment facilities, landfill design and recycling, air monitoring, soil stabilization, etc.)
- Efficient and clean energy production using conventional sources – oil, gas, coal, etc.
- Least cost power system design. Reliable grids.
- Village power for remote settlements.
- Affordable energy – cost reductions and improving efficiency of use
- Potential to expand in a great Eurasian context

The organization will be the key contact point in the region for developers, sponsors and users of sustainable energy projects offering scientific, business and financial expertise in clean energy technologies and their applications in Eurasia. It will be a central node for efficient and effective technology transfer and business development throughout the region.

The CAR organization can assist Eurasian energy, business and development organizations cooperate with each other by sharing information, facilitating trade in clean/efficient energy technologies, reporting on technological feasibility, disseminating local pilot project experience, purchasing systems and materials in bulk to reduce costs, developing a design and evaluation guidelines to streamline the planning, develop competitive procurement procedures that will be acceptable for foreign/multinational institutions.

It will also be able to organize training – for example on market based policy instruments, ESCOs, energy audits, efficient district heating, village power systems, equipment maintenance, efficient irrigation, etc. A working group representing each country will draft a mission statement and organizational structure, and incorporate comments by all governments; by January 1, 2006.

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### **II Background**

Central Asia's vast and diverse renewable energy assets have untapped potential to improve access to environmentally sustainable power, electricity and heating sources so essential to social and economic progress. While Soviet era renewable energy technology research in Central Asia was coordinated and funded on a regional basis, regional and national research and development infrastructures in this field collapsed after 1990. More recently, governments and experts in the independent Central Asia Republics are prioritizing cost effective sustainable energy applications for deployment in rural and energy deprived communities, and now realize the need to more actively engage neighboring countries and the international community in the quest for new technologies and support for pilot projects which can demonstrate the technical and market viability of sustainable energy.

The Almaty Conference built upon a broad-based effort by government and private organizations to promote the adoption of renewable and/or energy efficient technologies in Central Asia. A cornerstone of this effort was the first *Central Asian Working Group for Renewable Energy Market Development* which was founded at the first *EcoLinks / DOE Workshop for Renewable Energy in Central Asia: Technology and Marketing* which held on October 27-28, 2004 in Washington, DC. At this initial workshop, energy and development experts from Central Asia and Azerbaijan, the international development community, and the U.S. private sector, met in Washington and formed a working group of Central Asian experts, initiated a road mapping exercise for renewable energy markets and proposed a virtual center for renewable energy development in the region. In addition to this workshop several related regional activities have been initiated recently- including a USTDA funded definitional mission to examine the commercial potential for renewable energy technologies in Uzbekistan and Azerbaijan, an ADB funded study for renewable energy potential in Uzbekistan, USDOE programs and support for energy efficiency activities in Central Asia, UNDP support for Solar PV Projects in Uzbekistan and a utility-scale windpower program in Kazakhstan, the Civilian Research and Development Foundation (CRDF) Workshops on Eurasia Renewable Energy Technology Commercialization and the initiation of the USAID Office of Development Credit programs for energy efficiency in Kazakhstan.

### **III Event Description**

**Greater regional cooperation** to facilitate eco-energy markets was the pervasive theme of the Almay Conference. This concept was voiced often by the official delegates from government agencies of Kazakhstan, Kyrgyzstan, Tajikistan and Uzbekistan, and the delegates from Central Asian institutes and private sector firms, as well as the sponsoring organizations: regional cooperation amongst the Republics is viewed as a pre-requisite for the launching a viable clean energy markets– because each country has specific expertise and specific assets which need to be pooled efficiently if commercial development is to be cost effective.

For example, the impending entry of Kazakhstan into the Kyoto Protocol – into the Annex 1 group of "developed" countries represents a catalytic opportunity for new clean energy business; if the neighboring republics countries will partner with Kazakhstan on Clean Development Mechanism (CDM) projects. Delegates from Uzbekistan and Kyrgyzstan also pointed out, that regional cooperation is essential because of the shared economic and social development problems faced by each country; lack of reliable electricity in many regions, lack of adequate drinking water, irrigation water shortages and system inefficiencies, degraded agricultural systems, unemployment, rural poverty, insufficient rural health care and educational programs, and rural migration to urban areas which overburden cities, and unreliable electrical power grids that discourage investment and technology development.

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The United Nations Development Program (UNDP) underscored the necessity for regional cooperation and action by national governments in the sustainable energy field by pointing out the grave public health and ecological crises in Central Asia resulting from unsustainable energy policies—for instance Kazakhstan is the World's #5 emitter of greenhouse gases per capita, and abnormally low-priced electricity from polluting coal fired plants throughout the region inhibit the upgrades and diversification in electricity supply and the uptake of environmentally sustainable energy technologies. Investors and suppliers from the U.S. private sector reiterated the need for regional cooperation in order to create a larger Eurasian market area for renewable energy technologies, which would attract outside investors, development assistance and technology suppliers.

The conference was organized around panel discussions which were designed to actively engage the participants in producing a conference resolution by consensus. In the first panel of the conference, delegates from energy institutes in each country characterized the existing renewable energy resources in each country, the current status of local programs for sustainable energy technologies and the great social and economic problems which they have the potential to address. Following the discussion of the existing status of renewable energy in Central Asia, representatives of regional programs, UNDP and EBRD discussed regional programs to stimulate the development of sustainable energy business and existing barriers to markets and business and the policy reforms would be necessary. The UNDP and GE Energy speakers demonstrated that large utility scale wind projects have a great business potential in Kazakhstan based on an abundant supply of wind in Eastern Kazakhstan and the cost effectiveness of the technology – what is needed is consistent government policies which include creditworthy off taker or sovereign guarantees, long term defined tariffs (15+years), the availability of long term financing (project finance), tax stability and an acceptable economic return to investors.

In response to resource and policy challenges underscored in the earlier panels, the Kazakh, Kyrgyz, Tajik and Uzbek government spokespersons on the afternoon panel outlined upcoming legislation and government funded projects intended to assist renewable energy development. Noteworthy was the presentation by Mr. Kubaichuk an elected official in Kazakhstan's parliament, outlining the first ever renewable energy legislation for Kazakhstan. Clearly Central Asian governments, even in fossil fuel rich Kazakhstan, are realizing the need to diversify energy supply portfolios, develop clean energy assets and provide cost effective energy solutions to remote areas.

The second day of the conference opened with presentations from country on priority sustainable energy projects; Kazakhstan's Wind Energy program, Uzbekistan's solar photovoltaic industry and its applications for villages and the Oil & Gas Industry, Kyrgyzstan's experience in silicon production and biogas, and Tajikistan's small-scale hydro and solar potential. This was followed by presentations by private sector firms from Kazakhstan, Uzbekistan and United States on new technologies in solar photovoltaics, bio-gas, wind power, and hydropower.

The official closing session ended with a very active discussion amongst seminar participants about the proposal for a new regional eco-energy association. The original working group members from four countries discussed their proposal for the founding of an association with all participants in the conference: They proposed the founding of an association which would be a multi-national NGO comprising Central Asian government agencies, municipalities/local governments, NGOs, and private enterprises, etc.

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### **IV Conference Resolution**

The proposal for a new organization aroused keen interest amongst many conference participants which was debated vigorously by participants well beyond the official noontime closing of the conference. To facilitate the continuation of this discussion, all participants were invited to attend an open session of the "working group" in the afternoon:

Although the UNDP representative recommended a peripheral role for governments; the Tajik, Uzbek and Kyrgyz delegates believed that governments should have an integral role in the organization - a viewpoint favored by most of the other Kazakh participants. With this in mind, the conference resolution explicitly states the need for the organization to engage governments and include governmental representation:

The Kazakhstan Ministry of Environment representative recommended that the organization be officially registered, authorized and regulated by the government of Kazakhstan. Kazakhstani representatives also proposed that the organization be based in Kazakhstan because Kazakhstan possesses financing resources to initiate projects. However delegates from the other Central Asian Republics disagreed with this Kazakh viewpoint and underscored the need for equal representation by all Central Asia countries and registration in all participating countries. One delegate suggested a rotating secretariat which would be moved from country-to-country every five years. Tajikistan and Kyrgyzstan were suggested as ideal possible locations to initially host the organization because, these poorer countries would have the most to gain from programs to sustainable energy programs benefiting poor remote communities.

Several international delegates mentioned that the current working group website Eurasiare.net (RENET) needs to be used as a central tool for building the organizing. As an informational network and means of direct communications between the working group and stakeholders in the business and government community, it needs to be further developed.

By the closing, the conference resolution was discussed and signed by all final session participants, the objectives of the organizations were discussed and a revised structure of the working group and start-up timeline were established.

A. The "resolution" is a general document which all working group participants agreed upon declaring their endorsement of the new eco-energy association for Eurasian region. (An original Russian Language version of the resolution and an English translation are included in this briefing).

B. The objective of the new organization will be to promote markets for efficient, clean, renewable, and affordable energy and energy uses to the residents of Central Asia.

It will promote regional cooperation in the energy field by:

1. Establishing a framework for information sharing, project cooperation, training and technical assistance in sustainable energy projects.
2. Become a source – or referral to sources – of expertise in eco-energy technologies and projects: energy efficiency, renewable energy, clean energy (environmental protection), energy project development and financing.
3. Establishing a network of affiliated organizations, enterprises, sponsors, government agencies, for project cooperation

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4. Identifying top priority areas/projects for initial implementation of clean energy technologies (the emphasis will be on renewable energy – solar, wind, hydro, biomass).
5. Developing pilot rural energy systems – based on renewable energy sources – to provide power and other sources of energy to rural areas currently without energy or information/communications. This will address rural poverty (and flight to urban areas), water resource management, modern agricultural (cultivation) and irrigation methods to improve crop yield and reduce farm costs, and help provide communications and employment/income (e.g., through local food processing industries that use local energy sources energy to add value to crops and reduce crop spoilage) to remote areas.

\* The geographical scope of the organization will begin with the four founding Central Asian countries but be expanded gradually to include other Central Asian and Eurasian countries

#### **C. Working Group Structure**

The working group will consist initially of four representatives from the four founding Republics. Each country shall elect four representatives to the working group, one representative from government, one from the private sector, one from a research institute and one from a non-governmental organization (NGO).

Below are the following members of the working group:

Kazakhstan: Dr. K. Baigarin, Dr. G. Doroshin,  
Kirghizstan: Dr. A. Obosov, Mrs. N. Davlatalieva  
Tajikistan: Dr. R. Musaeva  
Uzbekistan: Dr. Tolib Soltanov, Dr. S. Suleimanov, Dr. Arslanov

Coordinator: Nurlan Zhangarin, EcoLinks Almaty

#### **D. Timeline for working group activities**

Dr. Rafiqa Musaeva (Tajikistan) to draft a mission, organization structure proposal within 45 days (due Nov. 1).

Working group members will have 45 Days for comment (due December 15).

The final draft proposal for mission and organizational structure incorporating all comments by the working group and governments should be produced by Dr. Musaeva and working group by January 1, 2006.



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### **VI. Event Participants**

#### **Governmental Agencies:**

##### *Kazakhstan*

Mr. Abzal Kusainov, Head of Foreign Relations Department Ministry of Energy and Mineral Resources  
Mrs. Magripa Tusupbayeva, Chief Specialist, Power & Coal Prod, Ministry of Energy & Mineral Resources  
Mrs. Entizar Aitasheva, Head of Industrial Development Department, Ministry of Industry and Trade  
Mrs. Saltanat Abdikarimova, Deputy Dir. Strategic Planning & Analysis, Ministry of Environment Protection  
Mr. Adilbek Nakipov, Head of Analytical Section, Ministry of Environment Protection  
Mr Yuri Kubaichuk, Member of Legislation/Legal Reform Committee, Parliament of Kazakhstan  
Mr. Zhanat Myrzabekov, Ministry of Economy and Budget Planning

##### *Kyrgyz Republic*

Mrs. Nadejda Davletalieva, Expert of Energy and Mining Department, Kyrgyz Republic  
Mr. Omor Rustambekov, Director, Ecology & Nature Mngmnt, Ministry of Ecology and Emergency Situations  
Mr. Tologon Sadabayev, Director Energy & Budget, Ministry of Economic Development and Industry

##### *Tajikistan\**

Dr. Rafika Musaeva, Association of Energetics of Tajikistan\* Ex-Minister unofficially representing G.O.T.

##### *Uzbekistan*

Dr. Oleg Azarov, "Uzbekneftegaz" Oil & Gas Nat. Holding Co.  
Dr. Akhmad Arslanov, Tech Transfer Agency of Uzbekistan

#### **Multi-lateral Agencies**

Dr. Gordon Johnson, Deputy Resident Representative, United Nations Development Program (UNDP)  
Dr. Gennady Doroshin, United Nations Development Program (UNDP)  
Dr. Peter Dickson, United Nations Development Program (UNDP)  
Mr. Harald Herrman, United Nations Development Program (UNDP)  
Mrs. Aida Karazhanova, United Nations Development Program (UNDP)  
Mrs. Natalya Veredova, UK Global Opportunities Fund  
Mrs. Jannat Salimova, European Bank for Reconstruction and Development (EBRD)  
Mr. Rashid Kadyrov, Operations Officer, Islamic Development Bank, Almaty  
Ms. Alma Issabayeva, Country Officer, Islamic Development Bank, Almaty  
Mr. Simon Kenny, World Bank- Central Asia Regional Office, Almaty

#### **Non-Governmental Organizations**

Mrs. Natalya Mikhailenko, Centre of Energy Efficiency Cleaner Production  
Dr. Kanat Baigarin, Climate Change Coordination Center (C4)  
Mrs. Natalya Druz, Center of the Energy Efficiency and Cleaner Production  
Mrs. Eugenia Novikova, Initiative Center for the Development of Youth  
Mrs. Gulsara Edilbayeva, Kazakhstan Business Association for Sustainable Development (KBASD)  
Mrs. Vera Mustafina, Kazakhstan Business Association for Sustainable Development (KBASD)  
Mr. Alexei Kim, Kazakhstan Business Association for Sustainable Development (KBASD)  
Dr. Rafika Musaeva, Association of Energetics of Tajikistan\* Ex-Minister unofficially representing G.O.T.  
Mrs. Zulfira Zikrina, Center for Sustainable Production and Consumption  
Mr. Abibula Abdumavlenov, Youth Center  
Mr. Nurlan Dzhienbayev, Sun Energy

#### **Central Asian Institutes:**

Dr. Erdos Kubakov, Kazhydromet, Kazakhstan  
Mr. Abdulla Aliev, Kazakh Institute of Water Resources  
Ms. Margulya Baykenova, Kazakhstan Research Institute of Ecology and Climate  
Dr. Bazarbayev, Kazakhstan Research Institute of Ecology and Climate  
Dr. Sultan Suleimanov, Physics of Sun Institute, Uzbekistan  
Dr. Alaibek Obozov, Center for the Renewable Energy Development, Kyrgyz Republic  
Dr. Erwin Gossen, Kazakh National Academy of Science

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### **Energy and Environment firms**

#### *Kazakhstan*

Dr. Alexander Trofimov, KazSelEnergoProject  
Mr. Gerald Pinchuk, KazSelEnergoProject  
Mr. Vladimir Sakhnov, KazSelEnergoProject  
Mr. Mikhail Rabinovich, KazSelEnergoProject  
Mr. V. Albrecht, Almaty Power Consolidated  
Mrs. Lyubko, Almaty Power Consolidated  
Mr. Popov, Almaty Power Consolidated  
Mr. Astafiev, Almaty Power Consolidated  
Dr. Anatoly Sudarev, Erkin K. Ltd  
Mr. Alexander Nestertsev, Alkor LLP  
Mr. Igor Levin, Alkor LLP  
Mr. Meiram Ilyasov, Kazakhstan Aluminium  
Mrs. Nadejda Firsova, Almat Power Plant 2  
Mr. Nauryzbay Taubaev, KazTransStroi

#### *Ukraine*

Mr. Aleksei Konev, Electric Plant

#### *United States*

Mr. Anuar Akinbayev, Ensafe Asia  
Mr. David Seidel, SRADCO  
Mr. Martin Berkenkamp, GE Energy  
Mr. Scott Sambucci, Economic Information Services  
Mr. Aitzhan Shakimov, Economic Information Services

### **U.S. Government Programs**

Mr. Mitchell Auerbach, Senior Commercial Officer, U.S. Foreign and Commercial Service  
Mr. John Kirk, U.S. Peace Corps.  
Mr. John McGill, USAID EcoLinks  
Mr. Nurlan Zhangarin USAID EcoLinks  
Mrs. Banat Ashkenova, SABIT Program

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### Appendices:

- A. Conference Resolution
- B. Workshop Agenda
- C. Opening Remarks by Mr. Gordon Johnson, UNDP, Conference Host
- D. Opening Statement by Mr. Mitchell Auerbach of the U.S. Commercial Service
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### **APPENDIX A: Conference Resolution (English Translation)**

The undersigned participants in the Regional Seminar on Renewable Energy Market Development in Central Asia held in Almaty, Kazakhstan on September 19<sup>th</sup> and 20<sup>th</sup>, 2005 gathered together to strengthen the further regional cooperation on sustainable energy market development which was initiated by the established “Working Group for Renewable Energy Market Development” at the 1st Workshop on Renewable Energy Market Development in Central Asia and the Caucasus in October 2004 in Washington, DC, USA.

Emphasizing the importance of clean, reliable, and affordable energy supplies and efficient energy consumption for sustainable economic development and improved living standards throughout the region, we confirm (underscore) the need for regional cooperation laid out in the “Working Group” Roadmap Action Plan and underscore that regional cooperation between government, research, private sector and non governmental organizations and their counterparts in neighboring countries is essential for building viable markets of scale for renewable and/or energy efficient technologies. The cooperation includes sharing technical commercial and policy expertise, activities coordination, prioritization of technology development, international investment attraction and use of eco-efficient technologies in Eurasia.

Markets cannot be realized without policy support by respective national governments, we agree to strengthen the information exchange, engagement and involvement of governments in market development activities

We therefore recommend the working group to create a regional association for Renewable Energy Market Development in the Eurasia region. It suggested that the members of this association would include representatives from governmental agencies, research institutes, non-governmental organizations, private enterprises and other interested organizations. In cooperation with international organizations and companies this association will assist state agencies, businesses and development organizations in each country to cooperate with each other and develop international partnerships by sharing information and experience, facilitating technology transfer, developing trade and investment policy, and attracting technical assistance for renewable energy sector development. It is presumed that the association will be supported by state agencies of each country of the region.

We endorse the efforts of the working group to take immediate steps to initiate a regional organization:

<u>Signature</u>	<u>Printed Name</u>	<u>Organization</u>

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### **APPENDIX B: Workshop Agenda**

#### **Day One: Monday, September 19, 2005**

Location: Conference Hall, Kazakhstan Hotel

#### **09:00 Registration**

#### **09:30 Opening Session**

Official Welcome by Host Organizations:

Mr. Mitchel Auerbach, Senior Commercial Officer (U.S. Embassy)

Dr. Gordon Johnson, Deputy Resident Representative, United Nations Development Programme

Dr. Kanat Baigarin, Climate Change Coordination Center

Dr. Gulsara Edilbayeva, Kazakhstan Business Association for Sustainable Development)

EcoLinks, Mr. John McGill, Mr. Nurlan Zhangarin

#### **09:45 Panel Discussion:** Presentations followed by questions and answers

Energy Supply in C.A.R: Renewable Energy (RES) in the Development Strategy & Energy Balance of CAR  
Presentations by Renewable Energy Working Group members from each country (Experiences of CAR states in RES technologies):

Kazakhstan (Dr. Kanat Baigarin, Climate Change Coordination Ctr, Dr. Alex Trofimov, KazSelEnergoprojekt)

Kyrgyzstan (Dr. Aliabek Obozov, Center for Renewable Energy Sources),

Uzbekistan (Dr. Sultan Suleimanov, Physics of Sun Institute, Dr. Tolib Sultanov, Clean Energy)

Tajikistan (Dr. Rafaega Musaeveva, Association of Energetics of Tajikistan)

#### **11:00 Coffee Break**

#### **11:30 Statements by regional programs**

Dr. Harald Herrmann, Wind Power Market Development Initiative- UNDP Socio-Economic and Environmental Impact Analysis

Mrs. Jannat Salimova, EBRD, Financing Energy Projects in CAR

Mrs. Natalya Mikhailenko, Expert Centre of Energy Efficiency Cleaner Production

#### **12:00 Morning Summary by Nurlan Zhangarin, EcoLinks Moderator**

Comments by International and Regional Renewable Energy Resource Experts

#### **12:15 Lunch in the Kazakhstan Hotel Restaurant**

#### **13:30 Panel Discussion:** Presentations followed by Questions and Answers from Audience

“Creating the conditions for renewable energy markets in Central Asia”

- International RE experience: Barriers to market creation, policy and legislative evolution

Dr. Peter Dickson, Kazakhstan - Wind Power Market Development Initiative, UNDP

- International Business Perspective on Renewable Energy Development

Martin Berkenkamp, GE Energy

Statements by CAR governmental agencies:

- Kazakhstan, Ministry of Energy and Mineral Resources

- Kyrgyz Republic, Department of Energy

- Uzbekistan, Dr. Oleg Azarov, UzNefteGaz, State Oil and Gas Holding Company, New Technologies Department,

#### **14:45 Coffee Break**

#### **15:15 Opportunities of the regional cooperation- Working Group Members, RE experts, International Financing Organizations**

- Regional Integration in the area of RES (development perspectives, priorities, development mechanisms and the ways of overcoming barriers in the area of RES)

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- Transfer and commercialization of RES technologies. Innovative activity (R&D and industrial assimilation).
- RES market, financial and economic framework for development of RES market in CAR

### **17:00 Afternoon Summary by Nurlan Zhangarin, EcoLinks Moderator**

Comments by International and Regional Renewable Energy Resource Experts

16:30 – 18:00 Reception

### **Day Two: Tuesday, September 20 2005**

Location: Location: Conference Hall, Kazakhstan Hotel

### **Opening 2<sup>nd</sup> Day**

Dr.Gulsara Edilbayeva, Kazakhstan Business Association for Sustainable Development)  
EcoLinks, Mr. John McGill, Mr. Nurlan Zhangarin

### **09:30 Project Session: Renewable Energy Projects in Central Asia**

**Moderator: Sultan Suleimanov, Uzbekistan**

- Kazakhstan: Utility Scale Wind Power projects (Dzungar Gates), Dr.Doroshin, Project Manager UNDP Kazakhstan
- Wind Power Market Development Initiative
- Uzbekistan: Renewable Energy for the Oil and Gas Sector, Dr.Sultanov, Dr.Arslanov, Dr. Azarov
- Kyrgyzstan: Renewable Energy Projects in Kyrgyzstani market: conditions, barriers, and prospects, Dr.Obozov

**Group Discussion (International and Regional Experts, Local business and Organization)**

### **10:45 Coffee Break**

### **11:15 Private Sector Presentations**

- Wind Power Technologies - GE Energy – Martin Berkenkamp
- Solar: Photovoltaics and Solar Thermal
- Hydropower
- Biomass
- Biogas- David Seidel, SRADCO

### **12:00 End of the seminar**

### **14:00 –16:00 Working Group Session**

#### **Confirmed Participants:**

- Kazakhstan: Doroshin, Baigarin, Trofimov, Doroshin, Sudarev, Nakipov
- Uzbekistan: Suliemanov, Sultanov, Arslanov, Azarov
- Kyrgyzstan: Obozov,

Foreign Expert Advisors to working group: Martin Berkenkamp, Peter Dickson, Harald Hermann, Scott Sambucci, David Seidel.

EcoLinks Advisors:

## **APPENDIX C: Opening Remarks: Gordon Johnson, UNDP Deputy Resident Representative**

Ever since the dawn of the Industrial Revolution, energy has been at the centre of world development. From the peat bogs of the British Isles to the forests of North America, from the coal deposits of Central Europe to the oil of the Middle East, energy has been the engine that has driven unprecedented global development for more than 300 years. Today the ready availability of plentiful and affordable energy allows us to enjoy more comfort, more mobility and more productivity than ever before.

Unfortunately, most of our current energy use is also accompanied by negative environmental impacts that threaten human well-being now and well into future. As noted at the UN Conference on Environment and Development in Rio de Janeiro in 1992, “Much of the world energy is currently produced and consumed in

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ways that could not be sustained if technology were to remain constant and if overall quantities were to increase substantially.” Why? Because we’re damaging our environment.

Energy's link to global warming through greenhouse gas emissions was addressed by the UN Framework Convention on Climate Change, adopted in 1992. Fossil fuel combustion produces more carbon dioxide than any other human activity. It's changing the composition of the atmosphere which in turn is altering the global climate system and threatening local ecology. Because of this, the development of environmentally-friendly energy systems is vital for the sustainable development of the human family into the future.

Kazakhstan is the largest producer of greenhouse gases in Central Asia. This is partly due to the fact that Kazakhstan is more industrialized than other Central Asian states. But it is also due to the fact that Kazakhstan uses energy rather inefficiently. Kazakhstan's “energy intensity” – that is, the consumption of energy as an input versus gross domestic product as output – is one of the highest in the world. According to 2001 data from the International Energy Agency, Kazakhstan was the third largest emitter of energy-related CO<sub>2</sub> per GDP (4.68 kg CO<sub>2</sub>/1995 US\$) and the 29th largest emitter per capita (8.02 tonnes of CO<sub>2</sub>/capita) in the world. Almost half (45%) of all greenhouse gases are emitted by the energy sector, which in turn is based primarily on the usage of coal (80% of fuel consumption).

Perhaps this is not surprising. Kazakhstan after all is rich in fossil fuels.

But less well known is the fact that Kazakhstan is rich in renewable energy resources as well. Unfortunately, Kazakhstan's hydro, wind and solar power potential has hardly been tapped at all. For example, only 15% of Kazakhstan's power generation comes from hydro-power.

From a geographical and meteorological point of view, the Republic of Kazakhstan is one of the best countries in the world to develop wind energy. Investigations made by the United Nations Development Programme in the late 1990s at two specific sites in southeastern Kazakhstan revealed a wind potential between 3200-4400 kWh per year per kilowatt-hour of installed capacity. This is among the highest potential in the world. Unfortunately, because of the massive coal deposits in Kazakhstan and subsidized energy prices, the potential for renewable energy development has never taken off in Kazakhstan.

That should change in the future. Kazakhstan ratified the United Nations Framework Convention on Climate Change (UNFCCC) in May 1995 and signed the Kyoto Protocol in 1999. Kazakhstan will most likely ratify the Kyoto Protocol in the near future.

Because of this, Kazakhstan will be obligated to take concrete actions to reduce their greenhouse gas emissions. The United Nations Development Programme is assisting in this effort. Specifically, we are now implementing a project funded by the Global Environment Facility on developing the market for wind energy in Kazakhstan. Under this project, we'll assist in the establishment of Kazakhstan's first large wind farm – a 5 MW project near Djungar Gates.

But this is only a beginning and much work remains. I would like to mention three specific problems. First, the legislative basis for supporting and promoting renewable energy needs to be finalized. Second, further and more detailed research needs to be conducted on the renewable energy potential in Kazakhstan. Third, energy pricing needs to be reviewed such that energy providers are able to cover the full costs of their investments and operations.

Only based on further developments on these three areas will private sector investors be willing to step up and invest in renewable energy development in Kazakhstan. We at the United Nations Development Programme are pleased to be working with the Government of Kazakhstan in all of these areas.

We are also pleased to be a supporter of this conference today. Together with Ecolinks and our many other partners, we hope that this conference will serve to further promote the development of renewable sources in Kazakhstan and Central Asia in the years to come.

Thank you.

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### **APPENDIX D: Opening Statement by Mr. Mitchell Auerbach, Commercial Officer U.S. Embassy**

On behalf of the U.S. Commercial Service in Almaty, Kazakhstan, an office of the U.S. Department of Commerce, I congratulate the businesses, experts, and officials from Kazakhstan, Kyrgyzstan, Tajikistan, Uzbekistan, the United States and international organizations who are assembled here today. I would especially like to thank Chevron and the United Nations Development Program (UNDP) for their generous support, and the EcoLinks program, Climate Change Coordination Center (C4) and the Kazakhstan Business Association for Sustainable Development (KBASD) for their assistance.

The EcoLinks program is a joint effort of USAID and the U.S. Department of Commerce. The program seeks to build commercial partnerships between U.S. firms and technology experts and their counterparts in the Europe and Eurasia region— private firms, municipalities and government agencies – to realize environmentally sustainable development goals.

This conference represents an ongoing effort by EcoLinks, other U.S. and international programs and Central Asian development experts to create the market conditions which will enable the introduction of state-of-the-art clean and efficient energy technologies to Central Asia.

As you will discuss in this conference, the availability of clean, reliable, and affordable energy in the form of renewable energy or more broadly speaking “eco-energy”, has great potential to positively impact the economic conditions in villages as well as in cities. Eco-energy technologies can improve the delivery of essential energy for heating, gas and electricity for lighting, refrigeration, water pumping and irrigation, telecommunications and information technology, to name a few areas.

United States firms are the leading developers of the most modern and efficient energy technologies in the fields of biomass utilization, biofuels, energy efficiency, hydropower, solar PV and Wind Energy. Today, we have representation at this conference from one of the leading U.S. energy firms and developers of wind turbines, GE Energy. In the future U.S. firms will assist Central Asian energy businesses and development organizations by exporting vital expertise and technologies in renewable energy. There are thousands of private sector firms who are developing new “eco energy” technologies, these will be an important resource for Central Asia, and the U.S. Commercial Service can help you gain access to these firms. Please do not hesitate to contact us if you would like to learn more about U.S. eco-energy firms in specific technological areas. Our office in Almaty looks forward to helping you.

We are impressed by your efforts to work together to promote the development of markets for eco-energy technologies in the region and look forward to seeing the results of this conference.

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### **APPENDIX E: Opening Statement by John McGill, EcoLinks**

On behalf of the EcoLinks program, a program of the U.S. Agency for International Development (USAID) I would like to sincerely thank you all for coming here today from your respective institutes, agencies, private companies and non governmental organizations in Kazakhstan, Kyrgyzstan and Uzbekistan to contribute to this conference - which represents a new effort at regional cooperation between C.A.R. renewable energy experts, governments and international organizations.

The EcoLinks program would like to especially thank Chevron and the United Nations Development Program (UNDP) for their generous support, and the Climate Change Coordination Center (C4) and the Kazakhstan Business Association for Sustainable Development (KBASD) for their assistance.

Each country in Central Asia shares many common problems which decrease the economic and political stability: polluted air, desertification, lack of adequate water, shortage of potable water for people and animals, lack of jobs, rural poverty, insufficient rural health care and educational programs, rural migration to urban areas which overburden city resources, high priced energy, and unreliable electrical power grids, to name a few problems. Many of these problems— such as management of water resources, air quality, and desertification – are regional or at least multi-country problems and must be addressed as such. As most of you know, the availability of clean, reliable, and affordable energy is a key requirement for addressing these problems and thus improving regional economic and political stability.

In particular, renewable energy technologies or more broadly speaking “eco-energy technologies” can provide clean and affordable energy to urban and rural energy networks and thus have a transformational impact upon the quality of life, commerce and the reduction of poverty. Eco-energy technologies can improve the delivery of essential energy for heating, gas and electricity for lighting, refrigeration, water pumping and irrigation, telecommunications and information technology, to name a few.

As most of you also realize, Central Asia as a region has vast potential for the development of renewable energy resources, because it possesses an abundance of sun, wind, biomass and flowing water. You also realize that each country is naturally endowed its own specific specialization and concentration of renewable energy resources.

At this conference today, the organizers of this conference invite you - the regional experts on energy and development, businesses and renewable energy specialists – to join together not only to discuss but to chart a path for the market based development of eco-energy technologies in the region. By the end of this conference, we plan to gather your ideas and recommendations for the next steps to be taken in making market based eco energy projects a reality. We need your advice and we encourage you to contribute to this conference as much as possible.

Just to give you a little background:

Today's event is the outgrowth of another workshop held in October 2004 in Washington, DC, sponsored by the U.S. Department of Energy and the U.S. Agency for International Development's EcoLinks program which brought together experts and officials from five central Asian countries with 50 international energy and policy experts and private sector firms. At the conference:

- The Central Asian experts signed an agreement to build a working group on renewable energy market development in Central Asia, and to work together on Roadmap for RE market development. (You have a copy of this agreement in your handouts)
- The experts identified common needs, problems, resources and expertise in Central Asia.
- And recognized that solutions to each country's problems must involve coordination with other countries in the region.
- They identified a list of potential priority projects in each country.

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- They agreed to cooperate – and each other with knowledge, shared experiences, suggestions, review of each other's projects, regional resource planning (or at least coordination) etc.
- They proposed a “Virtual Center” for Renewable Energy in Eurasia (called EurasiaRE.NET). This virtual center was constructed as an internet website by the EcoLinks program ([www.eurasiare.net](http://www.eurasiare.net)) aims be a electronic storehouse of information on renewable energy resources, technologies and businesses in the region, which can be used by all businesses, institutes, agencies and organizations working on Eco-energy projects in Central Asia.

Today, the sponsors of this event, the U.S participants in the first Workshop - who could not be here today, the Central Asian participants in the First Workshop, who are all here today (!) and our sponsors make encourage you all to work together to promote deeper cooperation in eco-energy development.

I specifically we have one recommendation for you to consider:

While we will have very specific proposals from each country at this conference, we recommend that participants and working group develop a proposal for a new framework organization, or regional “Alliance” , (i.e., multinational) association of institutions, government agencies, private sector enterprises, NGOs, financial institution representatives, individuals, etc. to promote the development of environment-friendly energy solutions in Central Asia. The scope of this organization would include renewable energy, energy efficiency, clean energy technologies and their applications for business and sustainable development.. This proposed new organization would be the key contact in Central Asia for developers, sponsors and users of sustainable energy projects – such as renewable energy, clean fossil fuel, energy efficiency, providing energy to remote (rural) areas, providing a stable and reliable electricity supply, etc.